METHOD AND APPARATUS FOR SOLAR ENERGY COLLECTION

ABSTRACT

A pontoon structure is described that may be floated on a body of coolant liquid, together with others in an array. The entire array may be aligned with the sun in an azimuth direction, and each pontoon may be rotated to align it with the sun elevation. A solar energy conversion target, typically a photovoltaic conversion device, may be mounted on a portion of the pontoon structure that remains below the coolant level over a wide range of sun elevations. An asymmetric focus lens may be used to direct light entering the pontoon toward the conversion target. A lens to improve the uniformity of light directed to a conversion target is also described that is useful with pontoons, and can be configured to improve target illumination uniformity, particularly in the presence of partial shadowing, by directing light uniformly toward the target from each of a plurality of subregions.